AMENDMENTS TO THE CLAIMS

Please amend the claims as shown directly below. This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A low resistance fuse comprising:

a polymer membrane;

a fuse element layer formed on said polymer membrane to form a fuse-polymer layer; and

first and second intermediate insulation layers extending on opposite sides of said fuse-polymer layer and coupled thereto, at least one of said first and second intermediate insulation layers comprising an opening therethrough, said polymer membrane supporting said fuse element layer in said opening, the first intermediate insulation layer comprising at least one first slot formed into a lateral end thereof, the second intermediate insulation layer comprising at least one second slot formed into a lateral end thereof corresponding to the at least one first slot, wherein the at least one first and second slots are metallized on a vertical face thereof.

2. (Original) A low resistance fuse in accordance with claim 1 wherein said polymer membrane comprises a polyimide film.

3. (Original) A low resistance fuse in accordance with claim 1 wherein said polymer membrane comprises a liquid crystal polymer.

4. (Currently Amended) A low resistance fuse in accordance with claim 1 wherein said ~~low resistance fuse~~ polymer membrane has a thickness of about 0.0005 inches or less.

5. (Original) A low resistance fuse in accordance with claim 1 further comprising an arc quenching media in said opening, said arc quenching media surrounding a portion of said fuse element layer within said opening.

6. (Original) A low resistance fuse in accordance with claim 1 wherein said fuse element layer comprises a thin film foil.

7. (Original) A low resistance fuse in accordance with claim 6 wherein said fuse element layer has a thickness between about 1 to about 20 microns.

8. (Original) A low resistance fuse in accordance with claim 6 wherein said fuse element layer has a thickness between about 3 to about 9 microns.

9. (Original) A low resistance fuse in accordance with claim 1 wherein said fuse element layer comprises first and second contact pads and at least one fusible link extending therebetween.

10. (Cancelled)

11. (Cancelled)

12. (Original) A low resistance fuse in accordance with claim 1 further comprising first and second outer insulation layers laminated to respective said first and second intermediate insulating layers.

13. (Original) A low resistance fuse in accordance with claim 12 wherein at least one of said first and second outer insulating layers and at least one of said first and second intermediate insulating layers comprise a liquid crystal polymer.

14. (Original) A low resistance fuse in accordance with claim 12 wherein at least one of said first and second outer insulating lowers and at least one of said first and second intermediate insulating layers comprise a polyimide material.

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Cancelled)

26. (Currently Amended) A low resistance fuse comprising:

a polymer membrane;

a thin foil fuse element layer formed on said polymer membrane to form a fuse-polymer layer;

first and second intermediate insulation layers extending on opposite sides of said fuse-polymer layer and coupled thereto, wherein at least one of said first and second intermediate insulation layers comprises an opening therethrough, the first intermediate insulation layer comprising at least one first slot formed into a lateral end thereof, the second intermediate insulation layer comprising at least one second slot formed into a lateral end thereof corresponding to the at least one first slot, wherein the at least one first and second slots are metallized on a vertical face thereof; and

an arc quenching media located within said opening and surrounding said fuse-polymer layer within said opening.

27. (Original) A low resistance fuse in accordance with claim 26 wherein said fuse element layer has a thickness between about 1 to about 20 microns.

28. (Original) A low resistance fuse in accordance with claim 26 wherein at least one of said first and second intermediate insulation layers comprises a polyimide material.

29. (Original) A low resistance fuse in accordance with claim 26 wherein at least one of said first and second intermediate insulation layers comprises a liquid crystal polymer.

30. (Cancelled)

31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

34. (Cancelled)

35. (Cancelled)

36. (Cancelled)

37. (Currently Amended) A low resistance fuse comprising:

a polymer membrane;

a thin foil fuse element layer formed on said polymer membrane to form a fuse-polymer layer;

first and second intermediate insulation layers extending on opposite sides of said fuse-polymer layer and coupled thereto, wherein at least one of said first and second intermediate insulation layers comprises an opening therethrough, the first intermediate insulation layer comprising at least one first slot formed into a lateral end thereof, the second intermediate insulation layer comprising at least one second slot formed into a lateral end thereof corresponding to the at least one first slot, wherein the at least one first and second slots are metallized on a vertical face thereof;

first and second outer insulation layers laminated to said first and second intermediate insulation layers, wherein said fuse-polymer layer and said opening are configured to model an adiabatic envelope around a portion of said fuse-polymer layer in a vicinity of said opening.

38. (Original) A low resistance fuse in accordance with claim 37 wherein said thin foil fuse element layer has a thickness between about 1 to about 20 microns.

39. (New) A low resistance fuse in accordance with claim 37 wherein the first outer insulation layer comprises at least one third slot formed into a lateral end thereof corresponding to the at least one first slot, the second outer insulation layer comprises at least one fourth slot formed into a lateral end thereof corresponding to the at least one second slot, and wherein the at least one third and fourth slots are metallized on a vertical face thereof.